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| 09/773,242 | 01/31/2001 | Yun-cheng Ju | M61.12-0331 | 6141 |

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| EXAMINER | |
| LAO, TIM P | |
| ART UNIT | PAPER NUMBER |
| 2655 | 6 |

DATE MAILED: 07/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/773,242

Applicant(s)

JU ET AL.

Examiner

Tim Lao

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/23/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. Claims 1-11 and 13-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 1, the detailed description of the feature "associating a character string of the word phrase and the word phrase with a context cue indicative of disambiguating the character string" was directed mostly toward the English language. Examples given to support the feature was directed entirely toward the English language (see for example pages 16-19). The examples describing such feature in an Asian language and the feature "the word phrases comprising Asian characters" in claim 1 do not find support in the original disclosure. Therefore, it is not clear how the feature "for each word phrase of a list of word phrases comprising Asian characters, associating a character string of the word phrase and the word phrase with a context cue indicative of disambiguating the character string" is being implemented in an Asian

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language. If the applicant is content that such limitation is disclosed in the original disclosure, the examiner requests that the applicant provides specific references in the disclosure to support the added limitation "for each word phrase of a list of word phrases comprising Asian characters, associating a character string of the word phrase and the word phrase with a context cue indicative of disambiguating the character string".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-7, 10-11, 13, and 15-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Tang et al. (U.S. Patent 6,163,767, hereinafter "Tang").

| Claim(s) | <u>Tang discloses:</u> |
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| 1 | <p>A method for creating a language model for a speech recognition system to disambiguate characters of an Asian language (col.1, ll.26-48), the method comprising:</p> <p>for each word phrase (e.g., "tai2 wan1", col.2, ll.49-51) of a list of word phrases (e.g., "tai2 wan1", "tai2 dou2", col.2, ll.49-51) comprising Asian characters (e.g., Chinese characters), associating a character string (e.g., "tai2") of the word phrase and the word phrase (e.g., "tai2 wan1") with a context cue (e.g., the word "de" as in "tai2 wan1 de tai2") indicative of disambiguating (e.g. identifying) the character string; (col.2, ll.39-67) and</p> |

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| | <p><i>{1. This sentence description is referred to as Type B description. Type B = (w "de" c), where w is a word phrase, c is a character string, "de" is a context cue, and w "de" c is a word phrase with the context cue. (col.5, ll.30-35)</i></p> <p><i>2. The word "de" has the meaning of possession in Chinese and is similar to "as in" in English. For example, "tai2 wan1 de tai2" in Chinese has the meaning of "tai2 as in tai2 wan1" in English. In this respect, "tai2" is associated with "tai2" of "tai2 wan1".</i></p> <p><i>3. In the Type B sentence description, the word "de" is used as a context cue to identify (disambiguate) the homonym "tai2" as in "tai2 wan1 de tai2" or "tai2 dou2 de tai2". Note that the two characters "tai2" are written differently and have different meanings but with similar pronunciation.}</i></p> <p>building a language model as a function of the associated word phrases and character strings. (Fig.2; col.4, ll.48-67)</p> <p><i>{As shown in Fig.2, the Character Description Language (CDL) based language model is added with the statistical language model and the acoustic model to form a language model to recognize the sentence type with the associated word phrases character strings.}</i></p> |
| Claim(s) 2 | <p><u>Tang discloses:</u></p> <p>The method of claim 1 wherein the language model comprises a statistical language model. (Fig.2)</p> |
| Claim(s) 3 | <p><u>Tang discloses:</u></p> <p>The method of claim 2 wherein the language model comprises an N-gram language model. (Fig.3)</p> <p><i>{$P(w h_1, h_2, \dots, h_i)$ represents the output of an N-gram language model.}</i></p> |
| Claim(s) 4 | <p><u>Tang discloses:</u></p> <p>The method of claim 2 wherein the language model comprises a context-free-grammar (e.g., CDL grammar). (col.5, ll.23-65)</p> |
| Claim(s) 5 | <p><u>Tang discloses:</u></p> |

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| | The method of claim 1 wherein associating includes building a corpus (e.g. Vocabulary: Fig.2) of associated character strings and word phrases, and context cues, and wherein building the language model includes accessing the corpus. |
| Claim(s) 6 | <p><u>Tang discloses:</u></p> <p>The method of claim 1 wherein associating includes associating a first character (e.g., "tai2") of each word phrase (e.g., "tai2 wan1", "tai2 dou2") with the word phrase (e.g., "tai2 wan1", "tai2 dou2"). (col.2, ll.49-51)</p> |
| Claim(s) 7 | <p><u>Tang discloses:</u></p> <p>The method of claim 6 wherein associating includes associating another character (e.g. "bei4") of at least some of the word phrases (e.g., "bao3 bei4", "zhun3 bei4"), other than the first character, with the corresponding word phrases (e.g., "bao3 bei4", "zhun3 bei4"). (col.2, ll.51-54)</p> <p><i>{"bei4" is the last character of the word phrase "bao3 bei4" & "zhun3 bei4".}</i></p> |
| Claim(s) 10 | <p><u>Tang discloses:</u></p> <p>The method of claim 1 and further comprising adjusting a probability score for each of the associated characters and word phrases in the language model. (Fig.3, 4th block; col.5, ll.10-22)</p> |
| Claim(s) 11 | <p><u>Tang discloses:</u></p> <p>The method of claim 1 wherein associating includes forming a phrase comprising the character string (e.g., "tai2", "wan1") of the word phrase, the word phrase (e.g., "tai2 wan1") and the context cue (e.g., "de") for each word phrase (e.g., "tai2 wan1 de tai2") of the list of word phrases (e.g., "tai2 wan1 de tai2", "tai2 dou2 de tai2"). (col.2, ll.39-67)</p> |
| Claim(s) 12 | Canceled. |
| Claim(s) 13 | <u>Tang discloses:</u> |

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| | The method of claim 11 wherein the context cue comprises "de" in Chinese. (col.2, ll.40-41) |
| Claim(s) 15 | <p><u>Tang discloses:</u></p> <p>The method of claim 1 wherein each of the word phrases is a single word (e.g., "tai2 wan1") comprising at least one character (e.g., "tai2", "wan1"). (col.2, ll.39-60)</p> <p><i>{ "tai2 wan1" is a single word meaning the country of "Taiwan". }</i></p> |
| Claim(s) 16 | <p><u>Tang discloses:</u></p> <p>The method of claim 15 wherein each of the character strings (e.g., "tai2", "wan1") is a single character. (col.2, ll.39-60)</p> <p><i>{ "tai2" is a single character in Chinese. }</i></p> |
| Claim(s) 17 | <p><u>Tang discloses:</u></p> <p>The method of claim 1 wherein each of the character strings (e.g., "tai2", "wan1") is a single character. (col.2, ll.39-60)</p> <p><i>{ "tai2" is a single character in Chinese. }</i></p> |
| Claim(s) 18 | <p><u>Tang discloses:</u></p> <p>A computer readable medium having instructions, which when executed by a processor perform a method for recognizing characters when spoken (Fig.2), the method comprising:</p> <p><i>{ Processor and computer readable medium having instructions are inherent to the speech recognition system. }</i></p> <p>receiving input speech having a context cue phrase (e.g., "tai2 wan2 de tai2"), the context cue phrase comprising a character string (e.g., "tai2"), a word phrase (e.g., "tai2 wan2") having the character string, and a context cue (e.g., "de"); (col.1, ll.65-67; col.2, ll.39-67)</p> <p><i>{ The word "de" is used as a context cue to identify (disambiguate) the homonym "tai2" as in "tai2 wan1 de tai2" or "tai2 dou2 de tai2". }</i></p> |

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| | <p>detecting (e.g., recognizing) the context cue phrase (e.g., "tai2 wan1 de tai2") in the received input speech without prompting indicative of the character string as text; (col.5, ll.1-9) and</p> <p><i>{The context cue phrase "tai2 wan2 de tai2" which is in the form (W "de" C) is recognized.}</i></p> <p>outputting the character string (e.g., "tai2") as text without the word phrase (e.g., "tai2 wan1") and the context cue (e.g., "de") for the detected context cue phrase (e.g., "tai2 wan2 de tai2"). (col.1, ll.59-60; col.5, ll.59-67; col.6, ll.1-4; see also Fig.5A: CG-B block)</p> <p><i>{The single character "tai2" is generated by the Chinese character generator (Fig.3) without "tai2 wan1" and "de".}</i></p> |
| Claim(s) 19 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 18 and further comprising instructions for accessing a language model indicative of context cue phrases. (Fig.2; col.4, ll.48-67)</p> <p><i>{As shown in Fig.2, the Character Description Language (CDL) based language model is added with the statistical language model and the acoustic model to form a language model to recognize the sentence type with the associated word phrases character strings.}</i></p> |
| Claim(s) 20 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 19 wherein the language model is indicative of probabilities of phrases consisting essentially of associated character strings, word phrases having the character strings, and context cues. (Fig.3, 4th block; col.5, ll.10-22)</p> |
| Claim(s) 21 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 19 wherein outputting the character string includes outputting the character string (e.g., "tai2") as a function of recognizing the character string using the language model (e.g., CDL based language model). (Fig.1; col.5, ll.59-67; col.6, ll.1-4)</p> |
| Claim(s) 22 | <p><u>Tang discloses:</u></p> |

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| | The computer readable medium of claim 21 wherein the language model comprises a statistical language model. (Fig.2) |
| Claim(s) 23 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 22 wherein the language model comprises an N-gram language model. (Fig.3)</p> <p><i>{P(w h1,h2,...,hi) represents the output of an N-gram language model.}</i></p> |
| Claim(s) 24 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 21 wherein outputting the character string includes outputting the character string (P(w h1,h2,...,hi): Fig.3) as only a function of an N-gram of the received input speech.</p> |
| Claim(s) 25 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 21 wherein outputting the character string includes outputting the character string (e.g., "tai2") as a function of a comparison of a recognized character string with a recognized word phrase (e.g., "tai2 wan1"). (col.5, ll.4-9)</p> |
| Claim(s) 26 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 25 wherein when the recognized character string is not present in the recognized word phrase, the character string that is outputted is a character string of the recognized word phrase. (col.6, ll.9-13)</p> |
| Claim(s) 27 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 21 wherein the language model comprises a context-free-grammar (e.g., CDL grammar). (col.5, ll.23-65)</p> |
| Claim(s) 28 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 18 wherein each of the word phrases is a</p> |

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| | <p>single word (e.g., "tai2 wan1"). (col.2, ll.39-64)</p> <p><i>{“tai2 wan1” is a single word meaning the country of “Taiwan”}.</i></p> |
| <p>Claim(s) 29</p> | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 28 wherein each of the character strings (e.g., "tai2", "wan1") is a single character. (col.2, ll.39-60)</p> <p><i>{“tai2” is a single character in Chinese.}</i></p> |
| <p>Claim(s) 30</p> | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 18 wherein each of the character strings (e.g., "tai2", "wan1") is a single character. (col.2, ll.39-60)</p> <p><i>{“tai2” is a single character in Chinese.}</i></p> |
| <p>Claim(s) 31</p> | <p><u>Tang discloses:</u></p> <p>A computer readable medium having instructions, which when executed by a processor, for recognizing character strings when spoken, the instructions comprising:</p> <p><i>{Processor and computer readable medium having instructions are inherent to the speech recognition system. (Fig.2)}</i></p> <p>a language model indicative of context cue phrases (e.g., "tai2 wan2 de tai2") consisting essentially of associated character strings (e.g., "tai2"), word phrases (e.g., "tai2 wan2") having the character strings and context cues (e.g., "de"); and (Fig.2; col.2, ll.39-67; col.4, ll.48-67)</p> <p><i>{As shown in Fig.2, the Character Description Language (CDL) based language model is added with the statistical language model and the acoustic model to form a language model to recognize the sentence type with the associated word phrases character strings.}</i></p> <p>a recognition module (e.g., CDL based speech recognizer: Fig.1) for receiving data indicative of input speech (col.1, ll.65-67), detecting (e.g., recognizing) the presence of context cue phrases (e.g., "tai2 wan1 de tai2") in the input speech without prompting indicative of character strings as text, accessing the language model (col.5, ll.1-9), and outputting a character string (e.g., "tai2") as text for at least some detected context cue</p> |

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| | <p>phrases (e.g., "tai2 wan2 de tai2") spoken by the user (col.1, ll.59-60; col.5, ll.59-67; col.6, ll.1-4; see also Fig.5A: CG-B block).</p> <p><i>{1. The context cue phrase "tai2 wan2 de tai2" which is in the form (W "de" C) is recognized.</i></p> <p><i>2. The single character "tai2" is generated by the Chinese character generator (Fig.3) without "tai2 wan1" and "de".}</i></p> |
| Claim(s) 32 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 31 wherein the recognition module processes detected context cue phrases differently than other input speech by outputting only the character strings (e.g., "tai2") in the detected context cue phrases (e.g., "tai2 wan2 de tai2"). (col.1, ll.59-60; col.5, ll.59-67; col.6, ll.1-4; see also Fig.5A: CG-B block)</p> |
| Claim(s) 33 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 31 wherein the language model comprises a statistical language model. (Fig.2)</p> |
| Claim(s) 34 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 31 wherein the language model comprises an N-gram language model. (Fig.3)</p> <p><i>{P(w h1,h2,...,hi) represents the output of an N-gram language model.}</i></p> |
| Claim(s) 35 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 31 wherein the language model comprises a context-free-grammar (e.g., CDL grammar). (col.5, ll.23-65)</p> |
| Claim(s) 36 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 31 wherein the recognition module outputs the character string (e.g., "tai2") as a function of a comparison of a recognized character</p> |

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| | string with a recognized word phrase (e.g., "tai2 wan1"). (col.5, ll.4-9) |
| Claim(s) 37 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 36 wherein when the recognized character string is not present in the recognized word phrase, the character string that is outputted is a character string of the recognized word phrase. (col.6, ll.9-13)</p> |
| Claim(s) 38 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 31 wherein each of the word phrases is a single word (e.g., "tai2 wan1"). (col.2, ll.39-64)</p> <p><i>{ "tai2 wan1" is a single word meaning the country of "Taiwan". }</i></p> |
| Claim(s) 39 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 38 wherein each of the character strings (e.g., "tai2", "wan1") is a single character. (col.2, ll.39-60)</p> <p><i>{ "tai2" is a single character in Chinese. }</i></p> |
| Claim(s) 40 | <p><u>Tang discloses:</u></p> <p>The computer readable medium of claim 31 wherein each of the character strings (e.g., "tai2", "wan1") is a single character. (col.2, ll.39-60)</p> <p><i>{ "tai2" is a single character in Chinese. }</i></p> |

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8, 9, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang.

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| Claim(s) 8 | <p><u>Tang shows:</u></p> <p>associating includes associating a first character (e.g., "tai2") of some of the word phrases (e.g., "tai2 wan1", "tai2 dou2") with the corresponding word phrases (e.g., "tai2 wan1", "tai2 dou2"). (col.2, ll.49-51)</p> <p>associating includes associating another character (e.g. "bei4") of some of the word phrases (e.g., "bao3 bei4", "zhun3 bei4"), other than the first character, with the corresponding word phrases (e.g., "bao3 bei4", "zhun3 bei4"). (col.2, ll.51-54)</p> <p><u>Tang does not show:</u></p> <p>associating includes associating each character of at least some of the word phrases with the corresponding word phrases.</p> <p>It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tang's method of associating different character strings to the word phrase to include associating each character of at least some of the word phrases with the corresponding word phrases in order to provide a fuller set of character strings association to the corpus so that any character of the word phrase, depending on user preference, can be used to associate.</p> |
| Claim(s) 9 | <p><u>Tang shows:</u></p> <p>associating includes associating a first character (e.g., "tai2") of some of the word phrases (e.g., "tai2 wan1", "tai2 dou2") with the corresponding word phrases (e.g., "tai2 wan1", "tai2 dou2"). (col.2, ll.49-51)</p> <p>associating includes associating another character (e.g. "bei4") of some of the word phrases (e.g., "bao3 bei4", "zhun3 bei4"), other than the first character, with the</p> |

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| | <p>corresponding word phrases (e.g., "bao3 bei4", "zhun3 bei4"). (col.2, ll.51-54)</p> <p><u>Tang does not show:</u></p> <p>associating includes associating each character of each word phrase with the corresponding word phrase.</p> <p>It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tang's method of associating different character strings to the word phrase to include associating each character of at least some of the word phrases with the corresponding word phrases in order to provide a fuller set of character strings association to the corpus so that any character of the word phrase, depending on user preference, can be used to associate.</p> |
| Claim(s) 14 | <p><u>Tang shows:</u></p> <p>the context cue comprises the claimed character "de" in Chinese. (col.2, ll.40-41)</p> <p><u>Tang does not show:</u></p> <p>the context cue comprises the claimed character "no" in Japanese.</p> <p>It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Tang's method of using the claimed Chinese character "de" to include the claimed Japanese character "no" in order to extend Tang's method of associating Chinese characters to Japanese language. Since the claimed Japanese character "no" has similar meaning to the claimed Chinese character "de" and the fact that Japanese is a character based language like Chinese, one of ordinary skill in the art can apply Tang's method to the Japanese language for the benefit of enhancing the application to other Asian language.</p> |

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Documents:

| | | | |
|-----|-----------|---------|-------------|
| [1] | 6,562,078 | 05/2003 | Yang et al. |
| [2] | 5,787,230 | 07/1998 | Lee |

Other Publications:

| | | | |
|-----|---------------|---------|---------|
| [3] | JP 11167393 A | 06/1999 | Okamoto |
|-----|---------------|---------|---------|

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Lao whose telephone number is 703-305-8955.

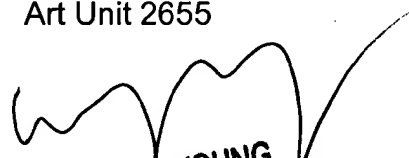
The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TL
07/13/04

Tim Lao
Examiner
Art Unit 2655


W. R. YOUNG
PRIMARY EXAMINER